REMARKS

In the patent application, claims 3-17, 20-23, 25 and 27-31 are pending.

In the office action, all pending claims are rejected.

Applicant has amended claims 7, 14, 21, 23, 25, 27, 28, 29 and 30 and added new claims 32 and 33.

Claims 7 and 28 have been amended to delete the limitation of "quantizer parameter" and to include the limitation that the index is indicative of a variance in the block differences.

The support for the amendment can be found on p.9, line 25 to p.10, line 8.

Claim 21 has been amended to change the wording.

Claims 14, 27 and 29 have been amended to change the claim dependency.

Claims 23, 25 and 27-30 have also been amended to change "computer readable medium" to "computer readable storage medium".

New claims 32 and 33 include the limitation of the quantizer parameter as originally claimed in claim 7.

No new matter has been introduced.

At section 3, claims 3-7, 9-17, 20-23, 25 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Koto et al.* (U.S. Patent Application Publication No. 2003/0215014 A1, hereafter referred to as *Koto*), in view of *Kim et al.* (U.S. Patent Application Publication No. 2003/0123539 A1, hereafter referred to as *Kim*).

In rejecting claim 4, the Examiner states that *Koto* discloses a method for video encoding wherein M reference frames are selected for a given original frame and each frame is partitioned into a plurality of blocks so as to obtain the block difference based on a summation of differences between a block in the original frame and the blocks in the reference frames. The Examiner states that *Koto* does not specifically disclose using the absolute values of the differences in the summation, but points to *Kim* for disclosing computing motion vectors using the sum of absolute difference (*SAD*) based block matching scheme (paragraph [0017]), and the *SAD* calculation compares current reconstructed previous luminance samples on a pixel-by-pixel basis (Equation 2; paragraphs [0018]-[0022]). The Examiner further states that it would be obvious for a

person skilled in the art to combine the SAD calculation of *Kim* with the coding scheme of *Koto* in order to provide a system capable of adaptive quantization having all the features of claim 4.

Applicant respectfully disagrees.

As disclosed in *Koto* (Figures 1, 2, 3, 8, 9 and 19), the output from the predictive macroblock selector 120 (Figures 1, 2), 150 (Figures 8, 19), 220 (Figure 3), 250 (Figure 9) is either signal 106 or signal 206. Signal 106 is prediction picture signal indicative of a linear sum of DCT coefficients to be subtracted from the video signal 100. Signal 206 is a linear sum of decoded picture signal 203 to be combined with reconstructed prediction error signal from the IDCT module 216 (paragraph [0072]). The macroblock selector receives the outputs from one of the predictive macroblock generators (119, 219, 151, 251).

It is respectfully submitted that each of the predictive macroblock generators, according to *Koto*, only uses a linear summation device to generate the predictive macroblock. These predictive macroblock generators cannot be used to compute the sum of absolute differences. If the SAD calculation, according to *Kim*, is applied to the encoders as disclosed in *Koto*, all the predictive macroblock generators in Figures 1, 2, 3, 8, 9 and 19 in *Koto* must be removed, and new and different predictive macroblock generators must be provided.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. MPEP 2143.01 VI.

For the above reasons, *Koto*, in view of *Kim*, fails to render claim 4 obvious.

For the same reasons, *Koto*, in view of *Kim*, also fails to render independent claim 21 obvious.

In rejecting claim 7, the Examiner states that *Koto* discloses that the weighting factor in the weighted sum is determined partially based upon a quantizer parameter or the index of reference frame (paragraphs [0081]-[0084]).

As amended, claim 7 includes the limitation that the index is indicative of a variance in the block differences. It is respectfully submitted that, the code-index as disclosed in *Koto* is used to indicate the position of the reference frame relative to the current frame (Figure 5), the weight-type (Figure 6) or the number of frames back

(Figures 7 and 11). *Koto* does not disclose using an index to indicate the variance in the block differences.

For the above reason, *Kim*, in view of *Koto*, fails to render claim 7 obvious.

For the same reasons, *Kim*, in view of *Koto*, fails to render claim 28 obvious.

In rejecting claim 10, the Examiner states that *Koto* discloses that the set of M reference frames is divided into N sub-sets, such that each of the M reference frames belong to precisely one of the N sub-sets so that the optimal offset is computed for each of the N sub-sets (Figure 11). Applicant respectfully disagrees.

It is respectfully submitted that *Koto* discloses that the position of the reference frame relative to the current frame can be indicated by a code number. For example, when the code-number is equal to 2, the reference frame is 2 frames back. *Koto* does not disclose that the reference frames are divided into sub-groups and the minimum shift is obtained for each sub-group.

For the above reasons, *Kim*, in view of *Koto*, fails to render claim 10 obvious.

For the same reasons, *Kim*, in view of *Koto*, fails to render claim 15, 29 and 30 obvious.

Furthermore, claims 3, 5-17, 20, 22, 23 and 25 are dependent from claims 4 and 21 and recite features not recited in claims 4 and 21. For reasons regarding claims 4 and 21 above, claims 3, 5-17, 20, 22, 23 and 25 are also distinguishable over the cited *Kim* and *Koto* references.

Additionally, claims 13, 14 are dependent from claim 10 and recite features not recited in claim 10; and claims 16, 17 are dependent from claim 15 and recite features not recited in claim 15. For reasons regarding claims 10 and 15 above, claims 13, 14, 16 and 17 are also distinguishable over the cited *Kim* and *Koto* references.

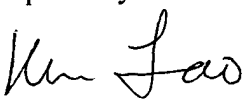
As for new claims 31 and 32, they are dependent from claim 4 and recite features not recited in claim 4. For reasons regarding claim 4 above, claims 31 and 32 are also distinguishable over the cited *Kim* and *Koto* references.

Additionally, claims 31 and 32 include the limitation that the weighted sum is determined at least partially based on a quantizer parameter of the reference frame. Neither *Kim* nor *Koto* discloses this limitation. Thus claims 31 and 32 are distinguishable over the cited *Kim* and *Koto* references.

CONCLUSION

Claims 3-17, 20-23, 25 and 27-32 are allowable. Early allowance of all pending claims is earnestly solicited.

Respectfully submitted,



Kenneth Q. Lao
Registration No. 40,061

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WARE, FRESSOLA, VAN DER SLUYS
& ADOLPHSON LLP
Bradford Green, Building 5
755 Main Street, PO Box 224
Monroe, CT 06468
(203) 261-1234